

TSMC99-646

ABSTRACT

A process for fabricating an upper level, metal interconnect structure, self-aligned to an underlying metal plug structure, which in turn overlays, and contacts a lower level, metal interconnect structure, has been developed. The process features the formation of a recessed metal plug structure, in a via hole, overlying and contacting a portion of the top surface of the lower-level, metal interconnect structure. Deposition of a metal layer is followed by a patterning procedure which results in the formation of a metal structure component, located on the surface of an insulator layer, defined by an overlying photoresist shape, with the metal structure component attached to a metal ring component, which is located in a top portion of a via hole, overlying and contacting, portions of the top surface of the recessed metal plug structure, with the metal ring component formed during the same patterning procedure, however unprotected by the photoresist shape. The metal ring structure is comprised of metal spacers, located on the sides of the top portion of the via hole.